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ABSTRACT

The report addresses issues of telecommunications access for hearing and speech impaired persons in Virginia. Six analyses were performed: (1) Accessibility of service organizations--over 89% of sample organizations were not accessible by a telecommunications device for the deaf and existing TDDs were underutilized; (2) Telephone use by persons with hearing impairments--20,000 to 40,000 Virginians are in need of TDDs; (3) Telephone company services--79% of companies were not accessible by TDD; (4) Message relay services--1.46% of the potential telephone service demand is being met through Virginia's relay services for this population; (5) Other related Virginia programs--there is limited placement by private and public programs of such assistive devices as TDDs, hearing aids, and telebraillers; and (6) Telecommunications access programs in other states--funding varied widely with budgets from a few thousand to $15 million annually. Specific recommendations resulting from the analyses include: an executive order that all state agencies and activities become TDD-accessible; promoting use of telecommunications access strategies by individuals, private, and public organizations; central coordination of state efforts to improve telecommunications access; state financial assistance to message relay services; distribution of TDDs to private persons in need with functional impairments of speech or hearing. (DB)

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REPORT OF THE
DEPARTMENT FOR THE
DEAF AND HARD OF HEARING ON

# Equal Telecommunications Access For Deaf And Hard of Hearing Virginians (TDD/Message Relay Programs)

TO THE GOVERNOR AND
THE GENERAL ASSEMBLY OF VIRGINIA

# House Document No. 9

COMMONWEALTH OF VIRGINIA
RICHMOND
1988

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## EXECUTIVE SUMMARY

This report addresses needs raised in House Joint Resolution 276 (1987) concerning telecommunications access for hearing and speech impaired Virginians. The resolution directed the Virginia Department for the Deaf and Hard of Hearing to:

- study the accessibility of telecommunications devices for the deaf;
- evaluate assistive services and devices;
- examine the impact of existing programs on telecommunications access for persons with hearing and speech impairments;
- consult client groups, the telecommunications industry in Virginia and other relevant state agencies; and
- recommend strategies and funding to improve the accessibility of services and the independence of certain persons through the telecommunications system.

Technology has made it possible to reduce communications barriers for persons with disabilities. Though telephones are seen as a necessity by most consumers, a disproportionate number of hearing impaired persons do not have telephone service. Special telecommunications equipment can be prohibitively expensive for those individuals. However, equal access to services is an established principle, and in many cases is mandated by federal and state statutes.

For hearing impaired persons, the greatest single problem in dealing with hearing persons is communication. Individually and in groups, hearing impaired persons experience isolation, and may function with their own language and culture.

Persons with severe to profound hearing impairments have lower average incomes and academic achievement levels than the population as a whole. Those with lesser impairments also face functional barriers. The decreased potential for independence caused by poor access to telephone service affects these individuals disproportionately. Strategies to remedy poor telecommunications access include special assistive devices called TDDs, and message relay services.

Six analyses were performed in response to the resolution. These were:

- Accessibility of service organizations: To measure the telecommunications accessibility of services for the deaf, addressed in the resolution, 446 service organizations around Virginia were evaluated for TDD ownership and use. Over 83% of sampled organizations were not accessible by TDD, and existing TDDs were found to be underutilized.

° Telephone use by persons with hearing impairments: The resolution directed a measurement of the impact of existing programs in Virginia on telephone use. Therefore, three groups of persons with severe hearing impairments were surveyed for TDD ownership and use. The three samples correspond roughly to groups of low, average and high income within the deaf community. Proportions of those without TDDs were 82% (low income), 66% (average income), and 40% (high income). Applied to projections of deaf Virginians, the percentages yield estimates of 20,000 to 40,000 deaf Virginians in need of TDDs. These estimates exclude the aged hard-of-hearing and persons with speech impairments.

° Telephone company services: Another component of existing programs is represented by specialized services available from Virginia telephone companies. Nineteen of 24 companies surveyed, or 79%, are not accessible by TDD in this manner. Companies reported limited use of available long-distance discount rates by TDD users. Use of discounts is limited by the small number of TDDs owned by private individuals.

° Message relay services: To address accessibility of telecommunications services for the deaf and the impact of existing programs as specified in the resolution, message relay services were examined. The study addressed their service areas, call volumes, hours of operation and annual budgets. Of eight organizations which responded, three have a primary mission to relay messages to and from persons with hearing impairments. Populations in different regions of Virginia are not served uniformly or proportionately. Two of the three message relay services limit their hours of service or the nature of messages accepted for relay, due to resource limitations. An annual volume of approximately 412,100 relayed calls requires funding of approximately $507,000 a year. Currently, an estimated 1.46% of the potential telephone service demand is being met through Virginia's relay services for this population.

° Other Virginia programs which may impact on access: A range of private and public programs have the potential to reduce the need for TDDs in Virginia. Three of four state agencies place assistive devices with clients who have a range of physical and sensory disabilities. However, placement of only one telebrailler could be verified. For two statewide service clubs, hearing aids were apparently placed more often than TDDs. A limited number of TDDs is loaned, rented or sold by message relay services in two separate metropolitan areas.

° Telecommunications access programs on other states: To illustrate strategies to improve telecommunications access elsewhere, programs in 21 other states were analyzed for funding, program benefits and client criteria. Programs emphasized TDDs, telebraillers and message relay services. Fund sources varied widely, with annual budgets from a few thousand dollars to $15 million annually. A range of disability, age, residency and income criteria were reported.

Based on the results of this study, the Department proposes development of an effective telecommunications access program. This proposal will balance TDD distribution with message relay services to assure effective communications for individuals and on the system level. The proposal expands and builds on current community service efforts, which have been limited by scarce resources. Financial support of community based message relay services will be coordinated with distribution of TDDs to private individuals.

No solution is without disadvantages. This proposal is a first step, and does not preclude future funding of a centralized, full-service message relay service staffed entirely by professional relay personnel.

## Recommendations

Specific recommendations to implement a balanced system of telecommunications services for hearing impaired and speech impaired persons include:

- An executive order from the Governor that all state agencies and state funded activities become TDD-accessible.
- Also by executive order, monitoring by the Department of public agency accessibility by TDD. Annual reports of monitoring data should be made to the Governor.
- Promoting use of telecommunications access strategies by individuals, private, and public organizations.
- Central coordination of state efforts to improve telecommunications access. Proposed costs are $51,730 in FY 1989, and $44,230 in FY 1990.
- State financial assistance to message relay services. Proposed costs are $40,000 in FY 1989 and $500,000 in FY 1990.
- Distribution of TDDs to private persons in need with functional impairments of speech or hearing. Proposed costs are $250,000 in FY 1989 and $500,000 in FY 1990.

Amendments to the Code of Virginia will be required for program and regulatory authority.

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EQUAL TELECOMMUNICATIONS ACCESS FOR SPEECH AND HEARING IMPAIRED VIRGINIANS

A REPORT IN RESPONSE TO HOUSE JOINT RESOLUTION 276

## 1. THE NEED

House Joint Resolution 276 (1987) directed the Virginia Department for the Deaf and Hard of Hearing (VDDHH) to:

- study the accessibility of telecommunications services for the deaf;
- evaluate assistive telecommunications services and devices;
- examine the effect of existing programs and services on increased independence for the hearing and speech impaired;
- consult hearing and speech impaired groups, the telephone industry, and other relevant state agencies; and
- recommend strategies and funding to improve accessibility of public services and businesses through the telecommunications system.

This report is submitted in response to House Joint Resolution 276. The text of the resolution appears in Appendix I.

### Culture and the Deaf Community[1]

For hearing impaired persons, the greatest single problem in dealing with the world of hearing persons is communication. Deaf persons may socialize together more than groups of individuals with other disabilities in common. Their cohesiveness can be viewed in terms of four factors which describe group interaction:

Audiological component: Clearly, the ability to hear affects socialization of individuals and groups. Self identification with hearing impaired persons is culturally important.

Political component: Individuals' personalities may incline them to seek power and influence within a community group, to hold formal office in organizations or in government.

[1] American Sign Language, Charlotte Baker and Dennis Cokely, T. J. Publishers, Silver Spring, MD, 1980, pp. 54-58

Linguistic component: Similarities and differences in language are critical to cultural identity. Use of sign language by many deaf persons establishes a common language among them, and a profound difference from hearing persons who use spoken language. The differences between groups appear frequently in written communication as well.

Social component: Individuals who identify with the deaf community are able to participate effectively in social functions within that community. In turn, this assumes proficiency in sign language, self identification with other deaf persons, and perhaps political involvement in organizations.

Individually and in groups, hearing impaired persons, and particularly deaf persons, experience isolation from the hearing world. To date, relatively few organizations and individuals have the capacity to communicate effectively with deaf people. Therefore, improvements to the quality of life of deaf and hard of hearing Virginians must begin with communications. Many persons with speech impairments experience similar needs.

Due to isolation, persons who are deaf or hard of hearing may not know of services which are readily available to them. Each year, the Department has contact with hearing impaired individuals who know nothing of sign language interpreter services or the existence of telecommunication devices for the deaf (TDDs). The Department's presence in communities throughout Virginia via the outreach program therefore is essential to the success of other programs it has proposed. Only when hearing impaired persons know of the options available to them will services be effectively utilized and client data properly gathered and utilized.

As individuals and through self-help organizations, hearing-impaired and speech-impaired Virginians have long shared the objective to make the public telephone system more accessible and responsive to their needs. No longer viewed solely as vehicles for voice transmission, telephone systems now allow exchanges of quantitative, verbal and graphic information in various forms.

Technical barriers to free and open communication with and among persons with disabilities have therefore been greatly reduced. A range of adaptive devices and services now exist to aid persons who are hearing impaired or speech impaired, as defined in Appendix II. If properly explored, these developments can lead to increased employment, economic independence, mobility, and improved English language skills for those with hearing impairments. Additional revenues will accrue to telephone companies as the subscriber base expands.

In early 1987, a national survey of telephone customers[2] was co-sponsored by the Consumer Federation of America, the American Association of Retired Persons, and AT&T, Inc. The survey of 3,300 individuals revealed that most people who do not have residential telephone service are younger, poorer, and change residences more often than other individuals.

The majority of households surveyed said that having a residential telephone was important. Nearly three quarters of people without telephone service stated that one-time costs of establishing service, such as deposits, were prohibitive. Another quarter stated that monthly service charges were a problem.

Finally, the telephone customer study revealed that consumers do not see telephones as a luxury. Households in the survey sample averaged 140 calls per month, of which 100 were seen as "essential."

In another study, the Florida Association of the Deaf has estimated that 94% of the residences in the United States have telephone service. The remaining 6% includes 98.6% of those with significant or profound hearing or speech impairments.[3] The circumstances of the second group deserve attention.

As a group, hearing impaired and speech impaired people have poor access to telephone service because they cannot afford the high cost of special telecommunication equipment, primarily Telecommunication Devices for the Deaf (TDDs). A description of these keyboard devices follows under Devices and Services to Improve Access. One-time costs of special equipment range from $15 to $5500 per telephone line or subscriber, in addition to normal costs for a regular telephone and services. Hearing-impaired and speech-impaired citizens pay taxes just as other people, and thus support staff and telephone service in governmental offices, health and human services agencies. Yet, with unequal access, these individuals often cannot contact the services they help to support.

The principle of equal access was clarified with enactment of the Federal Rehabilitation Act of 1973 and subsequent amendments. The Act requires that programs shall be as accessible to disabled persons as they are to others. Section 504 of The Rehabilitation Act of 1973 states that:

> No otherwise qualified individual in the United States .... shall, solely by reason of his handicap, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.

[2] Press release dated 2/21/87. Additional information is available from Mr. Douglas Fenishal, AT&T (201) 221-5062 and Mr. Mark Cooper, Consumer Federation of America, (202) 681-3378

[3] Ms. Deanie Lowe, Florida Association of the Deaf

The Virginians with Disabilities Act of 1985 makes a similar statement (Code of Virginia, § 51.01-40):

> No otherwise qualified person with a disability shall, on the basis of disability, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving state financial assistance or under any program or activity conducted by or on behalf of any state agency.

Though these laws apply primarily to programs receiving public support, the concept of equal access clearly has been established as a right for persons with disabilities in both private and public sectors. This proposal addresses certain access rights for speech and hearing impaired Virginians, and explores the potential for public-private partnerships to overcome communication barriers.

## Demographics

Schein and Delk[4] reported in 1974 on national data about persons with hearing loss. These data remain most commonly accepted for demographic analysis of persons with hearing impairments. Consistent with practices of many other states and agencies which serve persons with hearing impairments, Schein & Delk factors have been applied to local census figures to estimate numbers of hearing impaired persons. Tables of national factors and state population figures appear in Appendix III.

Census projections from the Tayloe-Murphy Institute place Virginia's population at 5,754,000 as of July 1986.[5] Use of national prevalence rates for hearing impairments reported by Schein & Delk (Appendix III) yields an estimate of 379,800 Virginians with hearing impairments. Significantly, 50,200 of these individuals are expected to have severe to profound losses.

Other indicators suggest that literacy, income and employment for hearing impaired persons as a group are not typical. J. A. Sessions reported that 60% of adults with severe to profound hearing impairments read at a fifth grade level or less.[6] Income figures for Virginia's hearing impaired rehabilitation clients indicate that in state fiscal year 1986, earnings at

4 The Deaf Population of the United States, Jerome D. Schein and Marcus T. Delk, Jr., Conducted by the National Association of the Deaf in Cooperation with the Deafness Research and Training Center, New York University, 1974.

5 July 1986 population estimates issued 1982, Tayloe Murphy Institute, University of Virginia

6 J. A. Sessions, Automation and the Deaf, as quoted by the Arkansas Rehabilitation Research and Training Center (1973)

an annual rate ranged from $2548 to $9880, prior to and after rehabilitation intervention.[7] Further, employment among persons with severe to profound hearing impairments is lower than for the general population. Underemployment is higher.[8]

These circumstances describe many of the estimated 50,200 severely to profoundly hearing impaired Virginians who cannot readily pick up the telephone to call the police, the local 911 emergency service, arrange a doctor's appointment or order merchandise and services. Persons with other communication disabilities increase the target population further.

Devices and Services To Improve Access

Technology exists which makes the telephone as accessible to persons who are hearing impaired or speech impaired as to those who are not. A telecommunications device for the deaf (TDD) is an electronic device which, when used with a telephone, can transmit and receive messages from other TDDs. Hearing impaired persons, their hearing family members and friends are the most frequent users of TDDs. Speech impaired persons also benefit. The most common features of a TDD are:

- a keyboard, often similar to a typewriter in layout;
- a lighted display of the words sent or received, similar to the window display on a desk calculator;
- a modem or acoustic coupler which receives and transmits the TDD messages in the form of coded beeps. The connection between TDD and telephone may be by wire, or the telephone handset may be inserted into a "cradle" equipped with rubber cups; and
- (optional). A printout or "hard copy" of the TDD conversation on a wide or narrow roll of paper.

Other optional features, also quite useful, include a flasher or vibrator to alert the TDD user that the phone is ringing, memory circuits for stored messages, a rechargeable battery to permit portability, and ASCII code compatibility to permit communications with computers.

To place a call with a TDD, the individual connects the telephone handset to the TDD, turns the TDD on, and dials a telephone number. For persons with hearing impairments, the response or signal at the other end is monitored by a flashing indicator light. Standardized abbreviations allow the communicating individuals to coordinate the conversation and respond at

[7] Special analysis by Virginia Department of Rehabilitative Services, August 14, 1987

[8] Schein and Delk, op. cit.

the appropriate time. These include "GA" (for "go ahead," i.e., "I have finished talking and you may reply."), "XX" (wrong or misspelled word), and "SK" ("stop keying," i.e., "The conversation is over.").

TDD prices will vary between $175 and $2000, depending on features, make, and other variables. A telebrailler for deaf-blind users will cost approximately $5500. A flashing or vibrating signaller for incoming calls will be an additional expense.

A TDD conversation will require more time than a similar conversation by voice. Long distance charges for a given call will therefore be higher than for an equivalent voice call if special TDD discounts are not used. While the cost for a basic TDD may not appear to be prohibitive, consideration must be given to the average income of persons who are deaf and the availability of TDD equipped telephones to receive or respond to their calls. In the national consumer survey discussed earlier, three quarters of those without telephone service could not afford one-time costs.

For certain hard of hearing persons, wide distribution of hearing-aid-compatible telephones, if implemented, will increase communications clarity and personal independence. Under the current federal law, PL97-410, a limited percentage of telephone sets in certain commercial or institutional settings must be hearing-aid-compatible. Many share the opinion that this law is unenforceable and ineffective. Since "terminal equipment" (including telephone handsets) are regulated by the Federal Communications Commission, Congressional action is required to improve the distribution of hearing-aid-compatible telephones. At this writing, an effort is underway in Congress to make all new telephones hearing aid compatible. Such efforts have failed in the past, however.

Other alternatives rely less on wide distribution of special devices than on centrally-operated or coordinated services. Message relay systems enable TDD users with impairments of hearing or speech to communicate by telephone with persons who communicate by voice. Message relay services and special adaptive devices therefore work best as a system, in which communications will occur between TDD users, as well as between voice and TDD communicators.

A message relay center is equipped with one or more TDDs or TDD compatible terminals, and is staffed by volunteers or paid operators who receive calls. The operator serves as an intermediary, relaying the message between the TDD caller and the person communicating by voice. The range of sophistication among message relay services is wide. The simplest service requires an office, a telephone, a TDD and an operator to answer the phone. The most costly and advanced services have around-the-clock staffing and terminals which allow simultaneous communication by the operator with both parties to the conversation.

Operating an effective service is not without problems. Limited hours of staffing prevent free and spontaneous communication. Peak-hour demand and volunteer staffing often lead to unreliable response times and variable quality of services. Priorities placed on certain calls by the relay service, such as medical emergencies, are rational. However, imposed priorities and limited hours limit free and spontaneous communications.

When viewed as investments, special strategies for telecommunications access, as described above, yield major benefits. Hearing impaired and speech impaired consumers and taxpayers will be able to call government, community and private services which they support, but cannot call now. Telephone companies and other businesses will experience increased revenues from an increased subscriber base and call traffic. Increased numbers of persons with hearing impairments will experience increased independence and increased or stabilized employment, as they are able to rely on themselves to arrange appointments or business transactions. Daily use of a TDD provides increased opportunity for telephone skills and language development, an area where persons with hearing impairments may lag behind their hearing peers. Telephone and language skills are crucial for young persons who must prepare for eventual employment and independence.

The advantages of telecommunications access strategies for hearing impaired persons have been acknowledged in at least twenty-one other states where telecommunications access programs have been developed. Programs identified by the Department in and outside of Virginia offer a range of services including providing TDDs and other devices for loan, rent, or purchase; message relay services; and information and referral. Funding for the programs is varied, with some programs relying on telephone line surcharges or tariffs, others utilizing state general funds and still others seeking donations or user fees. The range of examples includes many programmatic and financial alternatives to address the need. Persons with hearing impairments and speech impairments will continue to demand equality of access to the telecommunications system. Their objectives are personal and economic independence.

## 2. ANALYSES

Much of the information which follows required special surveys. Separate research or survey efforts addressed six topics:

- Telephone accessibility of service organizations to Hearing Impaired Consumers.
- Telephone use by persons who are hearing impaired.
- Telephone company services.
- Message relay services.

° Other programs in Virginia which may improve telecommunications access for individuals.

° Telecommunications access programs in other states.

Previous surveys by mail have yielded poor response rates. Therefore, data about service organizations, telephone companies, message relay services and other Virginia programs were obtained by telephone survey. Data about hearing impaired persons was gathered primarily through face-to-face surveys of the individuals.

Telephone Accessibility of Service Organizations to Hearing Impaired Consumers. The survey of service organizations was designed to reflect their communications accessibility to hearing impaired consumers, their awareness of these clients, and the frequency of communications with them. The instrument for the Telecommunications Access Survey appears in Appendix IV-A. The sample of organizations in six regions of Virginia was designed to include agencies with frequent public contacts, with services ranging from general to very specific.

Richmond staff, part-time outreach workers and volunteers were instructed in administering the survey. Because callers and their time were limited, each caller was given a prioritized list of localities and a complete list of service providers to contact. Each caller contacted one organization of each type, if available, in a locality. He or she then moved to the next locality on the list, and again surveyed as many categories of organizations as possible. Sample size was governed by organizations available in each location and the available hours of callers. The Department acknowledges the effort put forth by outreach workers and volunteers in completing 446 survey responses during the period of May 15-June 17, 1987.

° Awareness of Clients with Hearing or Speech Impairments: Survey results indicate that 74% (333) of all respondents recall contacts with deaf, hard-of-hearing or speech-impaired persons. Those surveyed were asked to indicate the means of communication with deaf, hard-of-hearing or speech-impaired persons. The most common response was "face to face" (280), followed by "message relayed by another person" (216) and "passing notes" (194). Communication by TDD telephone was indicated by only 64 organizations. An estimate by respondents of the number of such contacts in the last year indicates an average of 90 contacts with a range from one (1) to "thousands."

° TDD Ownership: Table I shows TDD ownership by organization type. Table II displays the same information on a regional basis. Staff at fifty-one percent of the organizations surveyed did not know what a TDD is. Of the 48% who knew what a TDD is, 45% (98 respondents) knew of deaf or hard-of-hearing persons in their area who have one. Of all respondents, 16.8% had a TDD in their office.

TABLE I

TELECOMMUNICATIONS ACCESS SURVEY
TDD OWNERSHIP OF ORGANIZATIONS BY TYPE

| | Organization Type | # Responses | # TDDs | % With TDDs |
|---|---|---|---|---|
| 1 | State Agency (Central Office) | 25 | 8 | 32% |
| 2 | Local Mental Health | 22 | 4 | 18% |
| 3 | Local Health | 27 | 2 | 7% |
| 4 | Local Social Svc. | 28 | 1 | 3% |
| 5 | Local VEC | 20 | 0 | 0% |
| 6 | Local DMV | 24 | 3 | 12% |
| 7 | Local Parks & Rec. | 20 | 0 | 0% |
| 8 | Local Ed. Agency | 27 * | 3 | 11% |
| 9 | Legal Aid | 15 | 1 | 6% |
| 10 | Local Government | 35 | 4 | 11% |
| 11 | Hospitals | 31 | 9 | 29% |
| 12 | Law Enforcement | 35 | 9 | 25% |
| 13 | Rescue Squads | 10 | 1 | 10% |
| 14 | 911 Emergency Svc. | 7 | 4 | 57% |
| 15 | Mass Transit | 8 | 1 | 12% |
| 16 | Public Library | 25 | 5 | 20% |
| 17 | Public Utilities | 42 | 1 | 2% |
| 18 | Fire Departments | 25 | 7 | 28% |
| 19 | Local Rehab. | 16 | 12 | 75% |
| 20 | Other | 4 | 0 | 0% |
| | TOTALS | 446 | 75 | 16.8% |

* Count includes the Virginia School for the Deaf and Blind at Staunton

TABLE II

TDD OWNERSHIP OF ORGANIZATIONS BY REGION

| Region | # Responses | # TDDs | % With TDDS |
|---|---|---|---|
| SOUTHWEST<br>Marion<br>Wytheville<br>Max Meadows<br>Bristol<br>Saltville<br>Big Stone Gap<br>Norton | 78 | 9 | 11% |
| SOUTHSIDE<br>Roanoke<br>Lynchburg<br>Halifax<br>Bluefield<br>Danville<br>Galax | 74 | 6 | 8% |
| VALLEY<br>Staunton<br>Charlottesville<br>Carrington<br>Culpeper<br>Lexington | 47 | 11 | 23% |
| NORTHERN<br>Winchester<br>Fauquier County<br>Fairfax<br>Manassas<br>Front Royal<br>Warrenton | 84 | 20 | 23% |
| HAMPTON ROADS<br>Virginia Beach<br>Hampton<br>Suffolk<br>Franklin | 33 | 4 | 12% |
| CENTRAL<br>Richmond<br>Henrico<br>Chester<br>Fredericksburg<br>West Point<br>Petersburg<br>Ashland | 130 | 25 | 19% |
| TOTALS | 446 | 75 | 16.8% |

° TDD Location and Use: A separate series of questions was asked of organizations which owned a TDD. Seventy-five percent responded that the TDD is located by the main phone, dispatch area, switchboard, or receptionist's desk. The average number of incoming and outgoing calls per month is 36. Responses ranged from zero to the hundreds. An average of 11 persons per office are trained to use the TDD, with 72% of the agencies indicating an established procedure for answering TDD calls. TDD calls are recognized by beeping (61%) or a combination of silence and/or beeping (35%). Fifty-two percent of those with a TDD use the equipment to relay messages between hearing persons and deaf or speech impaired persons an average of twenty times per month.

° Organizations Without A TDD: The 371 respondents without a TDD were asked if they had considered purchase of a TDD. Only 6% indicated that they had considered such a purchase. When asked if they had ever needed to contact deaf, hard of hearing or speech impaired persons but been unable to do so, 8% indicated "yes."

° Message Relay Services: All organizations were asked to respond to a series of questions concerning message relay services. Thirty-six percent indicated that they received calls relayed by hearing persons for speech or hearing impaired persons an average of 10 times per month. Three hundred fifty-four respondents were asked directly if they knew what a message relay service is. Eighty-two percent indicate they do not. When asked if they would use message relay services if available at no cost, only 8% indicated they would not.

° Underutilization of TDDs: Fifty-eight percent of organizations with TDDs indicate they receive calls from non-hearing impaired persons calling for hearing impaired persons. Forty-seven percent of those receive more calls of this nature than are received on TDD. Three possible inferences can be drawn from this statistic:

1) Hearing impaired persons with TDDs do not know the agencies have TDDs.

2) Many hearing impaired persons do not have access to TDDs to contact agencies with TDDs.

3) Incoming TDD calls are not recognized as such by staff of the organization.

Fifty-three percent of responding agencies would be willing to relay messages of an urgent nature if they were to acquire a TDD.

° Self-Assessed Accessibility: Responding to the last survey question, 59% of the respondents saw their organizations as accessible to deaf, hard of hearing and speech impaired persons. Of particular interest were the 24% of all respondents who indicated they had no TDD, yet considered their offices accessible.

Three hundred and forty-three respondents requested further information on becoming more accessible. Outreach workers have been given lists of those organizations to contact.

In summmary, the survey on accessibility of organizations yields useful information and conclusions. Of 446 sampled agencies, 16.8% are accessible by TDD. Among all organizations which are aware of hearing impaired clients, the TDD was the least used communications alternative for clients who could not use the telephone by voice. This underutilization is apparently due to insufficient numbers of TDDs, to lack of awareness of their availability, and failure to recognize a TDD caller as such. Limited awareness is also an apparent factor in failure of some agencies or clients to use message relay services. As discussed later in the report, message relay hours of operation and peak capacity are also limiting factors.

Many staff members in public service agencies fail to equate TDD use with accessibility for their hearing impaired or speech impaired clients. Greater distribution of TDDs to individuals and organizations, proper education on TDD availability and use, and on awareness of message relay services will help to remedy disjointed communications to and from persons with hearing impairments.

The access survey instrument appears in Appendix IV-A. A summary of access survey results appears in Appendix IV-B.

Telephone Use by Persons Who are Hearing Impaired: Earlier in this report, some cultural and linguistic differences of hearing impaired persons as a group were reviewed. Identification of and communications with hearing impaired persons, as a group, is more difficult than with other disability groups.

The Department therefore conducts an ongoing client needs survey, since a sustained effort is required to gather data in a volume necessary to draw useful conclusions. The Department also takes advantage of special conventions or meetings of hearing impaired persons to gather information on their concerns and needs.

Therefore, information from three separate survey efforts is reported here. These are:

- Ongoing needs self assessment by hearing impaired clients;
- Survey of hearing impaired persons at meetings or conventions; and
- Survey of TDD ownership by hearing impaired clients of rehabilitation services.

° Ongoing Needs Self-Assessment: Over the past year, temporary staff workers have been interviewing persons who are hearing impaired, usually on a face-to-face basis. The focus is on self-assessed hearing impairments and

the need for a range of services. Questions include ownership or use of a TDD. To date, 449 persons have been interviewed. One hundred and fifty-one persons (34%) indicate access to a TDD.

° Survey of Hearing Impaired Persons at Conventions and Meetings: A separate effort was developed to determine TDD access as well as problems associated with TDD use. Information for this effort was completed by one hundred and twelve persons, including attendees at a Virginia Association of the Deaf convention, members of Self Help for Hard of Hearing Persons (SHHH), and consumers known to Department outreach workers. It should be noted that this survey targets the better educated, independent and affluent hearing impaired persons.

All 112 of the respondents indicated they know what a TDD is. Sixty percent indicate that they have a TDD. Of the 40% without such a device, 65% want one. Seventy-six percent of those with a TDD use message relay services. Individuals in this sample reside primarily in an urban area served by a local message relay service.

The group of 112 was asked to select categories of problems associated with TDD use. The most frequent selection was that the telephone number of the message relay service was busy (46 responses). Other message-relay-related problems in this category included message relay service closed (22) and volunteers lacking proper training (9 write-in responses).

The second most frequently mentioned problem was that long distance calls cost too much. It is not known if these 40 respondents were aware of or utilizing available phone company discounts.

° Survey of Hearing Impaired Rehabilitation Clients: In a third effort, records of hearing impaired clients of selected rehabilitation counselors were tabulated for frequency of TDD ownership. One hundred thirty-six of seven hundred thirty-seven (18.5%) owned these devices.[9]

[9] Virginia Department of Rehabilitative Services, August, 1987

In summary, the three surveys of telephone use by persons with hearing impairments revealed large percentages of individuals who might readily benefit from having TDDs. The following table summarizes the results.

TABLE III

Deaf Individuals' TDD Ownership

| Survey | Number Surveyed | # With TDD | % With TDD | # Without TDD | % Without TDD |
|---|---|---|---|---|---|
| Ongoing self-assessment | 449 | 151 | 34% | 298 | 66% |
| Survey at conventions | 112 | 67 | 60% | 45 | 40% |
| Rehabilitation clients | 737 | 136 | 18% | 601 | 82% |
| TOTALS[10] | 1298 | 354 | 27% | 944 | 73% |

The samples above corresponded roughly to average, high and low income groups within the hearing impaired community, in that order. If applied to the 50,200 person Schein and Delk estimate for profoundly deaf Virginians, the need figures are as follows:

TABLE IV

Deaf Individuals In Need of a TDD

| Basis for projection | % Without TDD | Projected need for TDDs by profoundly deaf Virginians |
|---|---|---|
| Ongoing self-assessment | 66% | 33,130 |
| Survey at conventions | 40% | 20,080 |
| Rehabilitation clients | 82% | 41,160 |

The working estimate of individuals in Virginia with severe to profound hearing impairments and in need of a TDD therefore ranges from 20,000 to 40,000 persons. At current retail prices, portable printing TDDS in these numbers would cost from $8 million to $16 million, excluding shipping costs, signallers or other options. However, multi-year plans and volume discounts can be explored with potential vendors.

A summary of consumer information appears in Appendix V.

[10] Overlap of samples was not known to occur, but the potential for overlap exists. Total figures are therefore rough indicators.

Telephone Company Services: Twenty-four (24) local and long-distance telephone companies were surveyed about services in Virginia. Among these, representatives of 17 companies knew what a TDD was. Five indicated an office or operator with a TDD phone number for communications with deaf, hard-of-hearing or speech-impaired consumers. Special services or devices were acknowledged by eleven of the companies.

TDD long distance discounts are widely offered. Three definitions are useful to an understanding of discounts. These are:

Lata - This is an acronym for Local Access and Transport Area. A "lata" is a local exchange area, and is served by one local telephone company.

Intralata - Calls within a "lata" are "intralata" calls. Long distance intralata service is provided by a local exchange telephone company.

Interlata - Calls between "latas" are "interlata" calls. Interlata long distance service is provided by the long distance companies operating in Virginia.

State Corporation Commission (SCC) regulations on local exchange (intralata) TDD long-distance rates and on use of directory assistance services allow discounts for residential TDD users. However, responses suggest that local exchange companies are not often asked by hearing impaired consumers about discounted rates.

The SCC reports that only one long distance company, AT&T, is permitted by tariff to discount charges for interlata long distance calls and directory assistance services within Virginia. Presumably, other long distance companies have not been requested by consumers to allow TDD related service discounts, and have not requested SCC approval to do so. The availability of TDD-related long distance discounts is poorly understood by many consumers who might benefit from them.

Regarding other assistive services, telephone amplifiers were indicated most frequently (10), with one company indicating no charge for the device. One company specified the provision of artificial larynxes for speech impaired customers. A visual signalling system is offered by one company.

In summary, only 5 of 24 telephone companies can be reached by TDD. Though discounts for TDD long distance calls are widely available to residential users, telephone company responses suggest that requests for such discounts are few. Awareness of Virginia telephone companies about the needs of hearing impaired consumers must be increased. All telephone companies are encouraged to install TDDs, publicize their TDD telephone numbers among consumers, and to disseminate information on long distance discounts. Limited use of TDD discount rates may result from limited distribution of TDDs.

Appendix VI summarizes telephone company information.

Message Relay Services: The Department identified eight organizations which consider themselves to be message relay providers. Three of the respondents (Communication Center for the Deaf, Telecommunications Exchange for the Deaf, Incorporated - "TEDI" and the Virginia Crisis and Relay Center for the Deaf) are primarily message relay services, while the remaining organizations have other focuses. Survey questions addressed hours of operation, service areas, staff training, volume of calls, and operating budgets.

The results of this survey revealed wide gaps in message relay services available to Virginians who are hearing impaired. The information in Table V suggests broad coverage of the state. However, the volume of calls suggests that the population in each region of Virginia is served neither equally nor proportionately. Each service area below corresponds to an individual organization which relays messages.

TABLE V

Message Relay Service Survey
Volume of Calls Per Month

| Service Area | Calls per month |
|---|---|
| Northern Virginia | 33,000 * |
| Virginia Beach/Norfolk | 560 ** |
| Richmond | 500 |
| Newport News | 200 ** |
| Statewide | 840 *** |
| Winchester | 25 |
| Roanoke | 4 |

* Includes service in Washington, D.C. and Suburban Maryland. Separate information for Northern Virginia was not available.

** Appears to include voice calls

*** Respondent indicated significant month-to-month growth

° Message Relay Staffing Practices: Staffing patterns of the services indicate that both paid and volunteer positions are utilized in operation. A combination of full-time and part-time positions exist within most services. Volunteer and paid staff members receive some training at each service. All but one service provides specific TDD training. Four of the services offer training in deaf culture in addition to TDD training. Five of the services operate 24 hours a day for emergency and routine calls. However, only one of these five listed its primary mission as message relay.

All organizations stated that a formal policy of ethical conduct governs staff members who relay messages for hearing impaired clients. Such policies are strongly recommended to assure confidential treatment of clients' communications, and to comply with federal statutes which prohibit interception of electronic communications. Though all eight organizations were asked for copies of confidentiality policies or ethics codes, only two services actually provided written copies of such policies.

In addition to basic message relay service, the respondents indicate that they provide other services. Four of the services have TDDs available to rent, loan and/or purchase. Three of the services are primarily crisis intervention hotlines not specific to hearing impaired clients, and one is a county law enforcement agency.

Only two of the services indicated the dollar amount budgeted specifically for message relay costs. Five other respondents indicated message relay was an auxiliary service and an undetermined portion of the general budget. Seven respondents indicated their support for a statewide program of financial assistance to message relay services. Selected responses were returned to respondents in writing for verification by telephone.

Table VI displays more detailed information on the three organizations with primary missions of message relay for persons with hearing or speech impairments. The largest projected volume of calls is managed by Telecommunications Exchange for the Deaf, Inc., an organization serving persons in the Greater Washington, D. C. Metropolitan area. At this time, the smallest incoming call volume is experienced by the Communications Center for the Deaf in Richmond.

Precise budgetary information was not readily available. The figures shown in Table VI are, at this writing, the only guide available to establish levels of message relay service as a function of funding. The reader is warned that more complete information and an assessment of operating efficiencies could yield other figures. The figures below suggest that additional operating funds of approximately $507,000 may enable a doubling of Virginia's current annual relay volume of 412,100 completed calls.

TABLE VI
CHARACTERISTICS OF VIRGINIA ORGANIZATIONS
WHICH SPECIALIZE IN MESSAGE RELAY SERVICES

| Organization | Service Area | Daily Hours | Days Closed | Annual Rate of Incoming Calls | Annual Budget |
|---|---|---|---|---|---|
| Telecommunications Exchange for the Deaf, Inc. | Northern Virginia* Washington, D.C., Maryland suburbs | 19 regular 5 emergency | - | 396,000* for all areas served | $400,000* |
| Communication Center for the Deaf (United Way of Greater Richmond) | Greater Richmond | 8-1/2 | weekend | 6,000 | $ 37,000 (direct program costs only) |
| Virginia Crisis and Relay Service | Virginia | 24 | - | 10,100 | $ 70,000 |
| ANNUAL DOLLAR AND MESSAGE TOTALS | | | | 412,100 | $507,000 |

* The proportions of calls and budget attributed to Maryland and Washington, D. C. were not available.

° Impact of Proposed Services on Estimated Demand: The doubling of completed calls is proposed as a beginning, not a panacea. Earlier in this report, a national survey indicated that 140 calls per month per respondent were typical, and that 100 of these calls were "important." Table VII places proposed services and projected call volumes in perspective. These estimated numbers are subject to further refinement as data becomes available.

Assumptions for the estimated demand are:

- The average monthly call frequency is 140 per household (footnote 2, above). The rate for a single adult caller is presumed to be one third, or 47 calls.
- The average monthly frequency of "important" calls is 100 per household. The rate for a single adult caller is presumed to be one third, or 34 calls.
- Persons in Virginia with severe to profound hearing impairments are 50,200 (Appendix III).
- The average volume of calls relayed monthly in Virginia is 34,340 (from annual data in Table VI, above).
- Needs of hard of hearing and speech impaired persons, if included, would alter the estimates. Those needs are not quantified here.

TABLE VII

ESTIMATED MONTHLY DEMAND FOR MESSAGE RELAY SERVICES

| Item | Current | Proposed for 1989-90 |
|---|---|---|
| Calls relayed by specialized message relay centers | 34,340 calls | 68,680 calls |
| Full demand (50,200 deaf x 47 calls monthly) | 2,359,400 calls | |
| Important calls only (50,200 x 34 calls monthly) | 1,706,800 calls | |
| Percentage of full demand satisfied by relay | 1.46% | 2.91% |
| Percentage of "important" calls satisfied by relay | 2.01% | 4.02% |

Since very few hearing-impaired or speech-impaired persons in need of TDDs have them, little of the estimated demand is being satisfied by direct contact between callers. Staff at the Department believe that experience in the 1988-90 biennium will justify additional major appropriations for message relay services.

In summary, three of eight organizations indicated that relay of messages for deaf or hard of hearing clients was a primary service. One of the three serves all callers in Virginia, while the other two serve regions or metropolitar areas. Coverage of the Virginia population appears regionally uneven in terms of volumes of calls. For example, the service in Northern Virginia/Washington, D.C./Maryland relays 33,000 calls per month. The new 24-hour statewide service averaged 840 calls per month with continuing growth. The Richmond service reported 500 calls a month, but limits its operations to standard business hours, 5 days per week.

Budget information on all services was not available, and funding sources vary widely. Variations in hours of service, regions served, documentation of ethical standards and volume of calls can be managed only through additional resources. A centrally managed assistance program may improve the volume and consistency of message relay services to hearing impaired Virginians. An additional $500,000 annually may permit doubling of calls relayed to 800,000 annually. Such an action would accommodate an estimated 2.9% of the projected call volume for persons in need of relay services, when combined with existing community funding.

Solutions to communications problems should be acceptable to users of message relay services and TDDs. To stimulate comments, meetings of interested persons were held pursuant to the HJR 276 study, on April 30 and August 25, 1987. A range of concerns was expressed by deaf and hard of hearing consumers, as well as human service and telecommunications professionals. The prevailing concerns were for the preservation of the dignity of clients, and for the quality of services, both currently and as proposed.

Among those deaf and hard of hearing persons who have communicated with the Department during the study process, strong support was expressed for a full-time, message relay service with professional, paid staff, patterned after the organization operating in California. (See Appendices VIII and IX for information about the California Relay Service operated in California by AT&T, Inc.) The annual relay budget approximates $15 million. AT&T officials have estimated that a comparable arrangement in Virginia would require perhaps $.5 million in start-up costs, with operating requirements of $4-$6 million per year.[11]

Such a strategy may ultimately be found appropriate for Virginia. A smaller scale proposal would not preclude such a plan. The doubling of capacity proposed here will yield valuable experience in management and evaluation of relay services while utilizing limited resources for a more immediate benefit. The Department suggests that a multi-million annual dollar appropriation could not immediately be utilized with full effectiveness.

Additional information from this survey appears in Appendix VII.

Other Programs in Virginia Which May Improve Telecommunications Access for Individuals: Key state agencies and private organizations were contacted about distribution of TDDs for private individuals without charge or at subsidized rates. Each organization was asked about specific numbers of TDDS or other assistive devices purchased or distributed. Few responses were specific. However, unquantified responses suggest that assistance is very limited in scope.

Private organizations play a role, and service organizations frequently extend their services to organizations as well as individuals for assistance. Summaries of the responses are shown in Table VIII.

[11] Mr. Donald W. Boone, AT&T, Fairfax, VA.

TABLE VIII
POTENTIAL SOURCES OF TDDs FOR INDIVIDUALS

| ORGANIZATION | ARE TDDs GIVEN OR SUBSIDIZED FOR HEARING IMPAIRED OR SPEECH IMPAIRED INDIVIDUALS? |
|---|---|
| Department of Social Services | No |
| Department of Rehabilitative Services | Yes. No number is available. Other assistive devices are provided to persons with disabilities. |
| Department of Medical Assistance Services (Medicaid) | Data on TDDs is not available. Other assistive devices are provided. No number is available. |
| Department for Visually Handicapped | Yes. One telebrailler was placed in FY 1986. Other assistive devices are provided to persons with hearing and/or vision impairments. Numbers of other assistive devices placed are not available. |
| Lions Clubs | Yes. No number is available. The volume among all clubs is "limited." Hearing aids are placed more often. |
| Quota Clubs | Yes, occasionally. No number is available. Hearing aids are placed more often. |
| Telecommunications Exchange for the Deaf, Inc. (TEDI) | A limited number of devices are loaned, rented or sold within the community. Numbers and prices are not available. |
| Communications Center for the Deaf (CCD) | Approximately five devices are loaned or rented within the community for up to two weeks at a time. |

In summary, little hard information is available about TDDs for free or subsidized placement. Those organizations which provided estimates indicated that "a few" devices were distributed. Considering the age of the programs listed (all have been operation for four or more years) and the previously projected need of 20,000 to 40,000 devices for private individuals with severe hearing impairments, the impact of these worthwhile programs on the statewide need for TDDs has been small. A strategy for distribution of TDDs to individuals will be discussed in the discussion and recommendation sections.

Telecommunications Access Programs in Other States: Information in Appendix VIII has been gathered from state governments over a two-year period. Additional information was furnished by the National Center for Law and the Deaf (NCLD) at Gallaudet College in Washington, D. C., by Robert G. Klinefelter[12] of Santa Monica, California,and by AT&T, Inc.

Annual funding varies from $15,000 to $15 million among those programs for which detailed information is available. Administration, specific devices, services and client criteria vary widely. However, information in Appendix VIII reinforces the priority given to equal telephone accessibility for persons with hearing and speech impairments in twenty-one states in the last eight years. All programs operate in the public sector, and some involve public-private partnerships.

Conclusions to be drawn from this tabulation of programs are as follows:

° State Involvement: At least twenty-one states have developed or supported programs to distribute TDDs or provide message relay services to persons with speech or hearing impairments.

° Scope of Programs: TDDs, related equipment (i.e., flashers, vibrotactile signallers) and message relay services are emphasized in programs tabulated in the appendix.

° Funding: Line surcharges and state general funds are the most common fund sources. Annual funding may range from a few thousands of dollars to $15 million a year.

Lastly, much variation is found among these programs which can be documented. Therefore, many examples exist for consideration in Virginia.

12 Robert G. Klinefelter, Guidelines for the Implementation of A TDD Distribution Program, unpublished report copyright 1986. Available from the author at 3231 Ocean Park Blvd., Suite 101, Santa Monica, California 90405. Phone (213) 452-8613 (voice) or (213) 452-5460 (TDD).

## 3. DISCUSSION

Contacts with hearing impaired persons are frequent among organizations represented in the sample and would be more frequent if the rate of TDD access to their organizations were greater than the 16.8% in Tables I and II. Some TDDS in organizations appear to be underutilized because hearing impaired callers do not know of them, or because those callers do not have TDDs. With relatively poor access generally, most callers with TDDs are not likely to make experimental calls in search of accessible offices. Their experiences in trying to communicate with the world can be very discouraging. Among service providers the 24% of respondents who still felt their offices to be accessible despite the lack of a TDD reflect a common, if inaccurate "hearing" point of view. No data on TDD equipped public telephones was available for discussion in this report. Fortunately, telecommunications access for persons with hearing impairments and speech impairments can be made comparable to that for hearing persons.

On the consumer side, three samples of hearing impaired consumers were found to own TDDs at rates of 21%, 34%, and 60% respectively. The samples reflect TDD ownership or use by those hearing impaired persons with least, average and most income and education, respectively. Based on the sample with 60% ownership, 40% of the most "affluent" deaf or profoundly hearing-impaired persons cannot communicate freely by telephone, even if services were available to receive or relay their calls. The other two groups are even less "advantaged."

The disjointed communications between the hearing impaired population and organizations which exist to serve them are fundamental challenges. Earlier in this report, TDDs and message relay services were described as parts of a communications system. If not coordinated, the system will operate poorly. Without a precise measurement of current unmet need (which is not available), one cannot easily justify expansion of message relay services in an environment of few privately-owned TDDs. Similarly, distribution of TDDS to private individuals in need may have little impact if relay services cannot accommodate the additional calls. The data in Table V illustrated imbalances in call volumes. As a result, relay services in Virginia known to the Department receive frequent client criticism due to delays and demands beyond the services' control.

The Department believes that a coordinated program of TDD distribution and message relay services is required. With simultaneous programs to assist message relay services and to distribute TDDs to private individuals in need, Virginia can avoid some of the additional stress to existing services which results from development of new or imbalanced programs. In addition, the imbalances in message relay services to populations in different regions of Virginia can be reduced. Efforts to gather information in a coordinated manner will also yield better measurements of previously unmet demand for TDDs and relay services, based on growing call traffic and greater public awareness of the need and available services.

A campaign to publicize special services provided by telephone companies and others in Virginia is essential if hearing impaired and speech impaired consumers are to use the telephone system to full effect. Such an effort should also address increased compliance with state and federal laws on handicapped access.

However, the primary initiatives must directly address TDD distribution and message relay services. The existence of public and private programs show that the need has been recognized, though not satisfied. Community programs lack statewide coordination. This limits their effectiveness and efficiency. Current programs address a large but poorly documented problem and command too few resources.

Reliance on community donations or charitable funding sources has strengths and weaknesses. To the extent that community or charitable funding can be secured by a service organization, that organization has demonstrated community support for the personal and economic independence of persons with hearing impairments. However, many worthy causes compete for level or decreasing dollars in each community. In the long run, economics of the community service model may not support fair or adequate services to all regional populations, a reliable quality of services, or equal access to services for all persons affected by statute.

Heavy reliance on volunteer staffing also produces mixed results. Regardless of professional or volunteer status, all individuals serving persons with hearing impairments must be managed to assure responsible, ethical behavior in the handling of confidential communications, as well as adherence to appropriate procedures. Work schedules which rely heavily on volunteer workers also yield peak staffing at times other than peak demand. Further, clients with hearing or speech impairments overwhelmingly reject charity in favor of dignity, equal treatment and independence.

Funding is another problem. A dilemma exists where community commitment is armed with scarce resources. This leads to provision of telecommunications equal access services on a limited basis and to insufficient coordination of services on a larger scale.

The Department believes that a reasonable solution can be found. Community service organizations should be invited to participate in a statewide program to provide telecommunications access for hearing and speech impaired persons. The role of the Department should be one of support rather than direct control.

A program of grant or contractual funding to one or more potential recipients, including existing or proposed message relay organizations, will build on essential community relationships and support. Such grants or contracts, guided by coordinated statewide objectives, can target regions, scheduling, staff qualifications or other aspects of relay services. Other arrangements might address the intake or distribution phases of a program to place TDDs with individuals who need them.

The proposal has advantages and disadvantages. Coordination of independent providers is more complex than supervision of services from a single source. However, the Department believes that increasing the professionalism and impact of community resources will build on existing community support, and will maximize the effectiveness of all available funding.

Based on the foregoing analyses and discussion, the following recommendations are offered.

## 4. RECOMMENDATIONS

(1) Public agency access - Seek an executive order from the Governor which confirms that state-operated or funded providers of human services must be TDD accessible to persons with hearing and speech impairments, per the Virginians with Disabilities Act of 1985. In most cases, one-time purchases of TDDs should be absorbed easily within existing budgets. Use of message relay services would generate no additional expense for human service agencies.

(2) Monitoring of Compliance - Establish by executive order that the Virginia Department for the Deaf and Hard of Hearing will report annually to the Governor on compliance of public agencies in becoming TDD accessible. Most affected organizations should purchase TDDs from existing funds and use them effectively.

(3) Utilize Message Relay Services and TDDs - Through training programs and public service announcements, encourage publicly operated or funded agencies to support the concepts of accessibility and message relay services, and to utilize such services when and where available and useful. Encourage private businesses and service agencies not subject to federal and state access legislation to obtain and use TDDs, and to use message relay services. Encourage installation of TDD equipped pay telephones in key public places.

(4) Program management - Establish the position of TDD/message relay program manager within the Virginia Department for the Deaf and Hard of Hearing to administer grants or contracts, provide staff support for the planning of services on a statewide basis, train service organizations seeking to improve access, monitor public agency compliance with TDD accessibility, and liaison with the telecommunications industry in Virginia.

(5) Assistance to Message Relay Services - Establish a new source of funding through grants or contracts from the Virginia Department for the Deaf and Hard of Hearing to improve and expand the quality, volume and distribution of relay services to persons in the Commonwealth with hearing and speech impairments. Funding of message relay service costs may support staffing, telephone service charges incurred by services, other operating costs, or equipment acquisitions.

Such funding should be targeted to 1988-90 biennium improvements in quality and volume of messages relayed, as well as improved distribution of services to hearing and speech impaired clients in different regions of Virginia.

Doubling of message relay service capacity statewide, from 412,100 to approximately 824,000 relayed calls annually, should be the objective for 1988-90. Based on information in Table VI, $500,000 per year will permit and then sustain approximately this level of operations by the end of FY 1990. With state funding, Virginia's relay services will meet an estimated 2.9% of the demand from this target population. Additional funding may be requested later.

To be effective, such growth must be carefully planned. An orderly process will begin with appropriation of funds by the General Assembly, and simultaneous establishment of program and regulatory authority via amendments to the Code of Virginia as shown in Appendix X. Issuance of the proposed executive order should be synchronized to reinforce these other measures. At a minimum, the first six months of FY 1989 will be required for planning of programs, establishment of regulations and processes. Therefore, the first year (FY 1989) requests for appropriations should address administrative costs and a very small increment of funding, $40,000, for the third and fourth quarter, for urgent problems encountered by message relay services. The second-year appropriation request will address continued administrative costs, message relay funding of $500,000, and will support a doubling of Virginia's message relay services on an annual basis from 412,100 to 824,000 calls relayed. Distribution of TDDs, public awareness and compliance monitoring efforts are expected to push demand beyond the planned 824,000 message level soon thereafter. This proposal addresses a modest, intermediate objective.

(6) Distribution of TDDs - Establish a program within the Virginia Department for the Deaf and Hard of Hearing to fund and distribute telecommunications devices for the deaf (TDDs) and telebraillers to private persons who have hearing or hearing and vision impairments. Flashers or vibrotactile signalling devices, as required, may accompany these devices.

As in recommendation #5, preparation must precede the program. Appropriations, statutory and regulatory authority, program and client application processes and vendor arrangements must be developed before distribution of devices can begin. Actual distribution of devices cannot begin earlier than halfway through fiscal year 1989. In addition to administrative funding mentioned in recommendation #5, funding of $250,000 for the second half of the first year and $500,000 the second year will support distribution of devices to 500 clients and 1000 clients respectively. Cost estimates are based on the following:

- 20,000 to 40,000 clients are in need. (See Table IV).

- The objective is to meet telecommunications access needs each year for 5% of the most conservative need figure, i.e., 5% of 20,000 clients or 1000 clients annually.
- Clients will apply for 985 portable, printing TDDs and 15 telebraillers to be distributed on an annual basis.

| | |
|---|---|
| 985 TDDs x $400 each = | 394,000 |
| 15 telebraillers x 5500 each = | 87,500 |
| Auxiliary features (flashers, cups, repair warrantees, etc. | 18,500 |
| | 500,000 |

Persons who apply for assistance through the program should:

- be residents of Virginia;
- not currently have a TDD available;
- have functional hearing or speech impairments;
- apply as private individuals; and
- reside in households with telephone service, or should agree to obtain telephone service if a TDD or telebrailler is provided.

Distribution of devices should be equitable in treatment of persons residing in different regions of the Commonwealth.

APPENDIX I

## HOUSE JOINT RESOLUTION NO. 276

*Requesting the Department for the Deaf and Hard of Hearing to study the accessibility of telecommunication devices for the deaf.*

Agreed to by the House of Delegates, February 7, 1987
Agreed to by the Senate, February 19, 1987

WHEREAS, it is estimated that there are 372,000 hearing impaired Virginians, 180,000 who are significantly hearing impaired and 50,000 who are profoundly deaf; and

WHEREAS, there is an increasing number of the elderly who are hard of hearing, and many of the hearing impaired and the deaf also have impaired speech; and

WHEREAS, access to communications is essential, and hearing impaired taxpayers and consumers support such services to which many cannot gain access; and

WHEREAS, innovative telecommunications systems have reduced the barrier to free and open communications among the deaf and speech impaired; and

WHEREAS, many public agencies are not currently equipped to communicate with hearing-impaired persons; and

WHEREAS, only about ten percent of the approximately 50,000 profoundly hearing impaired have access to a telecommunication device for the deaf (TDD); and

WHEREAS, special rates for the use of TDD's are not uniformly offered by the telephone industry; and

WHEREAS, many deaf citizens are therefore severely handicapped in pursuing their economic and social lives, and access to such telecommunications systems would enhance the physical and economic independence, educational achievement and employment of these persons; now, therefore, be it

RESOLVED by the House of Delegates, the Senate concurring, That the Department for the Deaf and Hard of Hearing is requested to study the accessibility of telecommunication devices for the deaf, evaluate assistive telecommunications services and devices, and examine the impact of existing programs and services for the hearing and speech impaired relative to the potential for increased personal and economic independence of such individuals. The Department shall in its deliberations seek the participation of other relevant state agencies, the Virginia Association for the Deaf, groups representing the hearing and speech impaired, and representatives of the telephone industry. The Department shall recommend ways to improve accessibility of public services and businesses via the telecommunications system, and determine the funding necessary for the delivery of such services and devices.

The Department shall complete its work in time to submit its findings to the Governor and to the 1988 Session of the General Assembly.

## APPENDIX II

Definitions

The range of hearing losses are defined to address the ability to communicate. The Code of Virginia provides these definitions at §63.1-85.3:1:

> Deaf persons are those whose hearing is totally impaired or whose hearing, with or without amplification, is so seriously impaired that the primary means of receiving spoken communication is through visual input such as lipreading, sign language, fingerspelling, reading or writing.
>
> Hard of hearing persons are those whose hearing is impaired to an extent that makes hearing difficult but does not preclude the understanding of spoken communication through the ear alone, with or without a hearing aid.

For the purpose of this report speech impaired persons are those having had a laryngectomy and persons with neuromotor speech impairments rendering their speech unintelligible. (Definition furnished by Department of Education.)

## APPENDIX III

Prevalence rates are from the Deaf Population of the United States, Schein & Delk, 1974, published by the National Association of the Deaf. They are taken from the National Census of Deaf Population in the United States 1971-1972:

### NATIONAL PREVALENCE RATES

| | |
|---|---|
| All Hearing Impairments - all ages | 6.6% |
| Significant Bilateral Loss (moderate to severe) | 3.2% |
| Deaf (severe to profound) | .873% |
| Prevocationally Deaf (before age 19) | .203% |
| Prelingually Deaf (before age 3) | .1% |

The following table shows projected figures for the general population of Virginia as of July 1, 1986. Using the prevalence rates from the Schein and Delk study, VDDHH has projected estimates of the deaf and hearing impaired population in Virginia.

HEARING IMPAIRED POPULATION IN VIRGINIA

| CITY/COUNTY | PROJECTED 7/1/86 | .873% (DEAF) | 5.727% (OTHER H.I.) |
|---|---|---|---|
| Lee Co. | 128,916 | 252 | 1,656 |
| Scott Co. | 25,299 | 221 | 1,449 |
| Wise Co. | 48,060 | 420 | 2,752 |
| Norton City | 5,051 | 44 | 289 |
| Buchanan Co. | 40,532 | 354 | 2,321 |
| Dickenson Co. | 21,834 | 191 | 1,250 |
| Russell Co. | 35,721 | 312 | 2,048 |
| Tazewell Co. | 55,965 | 489 | 3,205 |
| Bland Co. | 6,877 | 60 | 394 |
| Carroll Co. | 29,018 | 253 | 1,661 |
| Grayson Co. | 16,916 | 148 | 969 |
| Smyth Co. | 33,929 | 296 | 1,943 |
| Washington Co. | 51,850 | 453 | 2,969 |
| Wythe Co. | 26,967 | 235 | 1,544 |
| Bristol City | 18,252 | 159 | 1,045 |
| Galax City | 6,828 | 60 | 391 |
| Floyd Co. | 12,527 | 109 | 717 |
| Giles Co. | 17,904 | 159 | 1,025 |
| Montgomery Co. | 71,108 | 620 | 4,072 |
| Pulaski Co. | 37,540 | 328 | 2,150 |
| Radford City | 13,877 | 121 | 798 |
| Alleghany Co. | 14,979 | 131 | 858 |
| Botetourt Co. | 25,806 | 225 | 1,478 |
| Craig Co. | 4,122 | 36 | 236 |
| Roanoke Co. | 83,368 | 729 | 4,774 |
| Clifton Forge City | 4,836 | 42 | 277 |
| Covington City | 8,358 | 73 | 479 |
| Roanoke City | 98,161 | 857 | 5,622 |
| Salem City | 24,614 | 215 | 1,410 |
| Augusta Co. | 57,828 | 505 | 3,312 |
| Bath Co. | 6,013 | 52 | 344 |
| Highland Co. | 3,115 | 27 | 178 |
| Rockbridge Co. | 18,321 | 160 | 1,049 |
| Rockingham Co. | 61,400 | 560 | 3,516 |
| Buena Vista City | 6,745 | 59 | 386 |
| Harrisonburg City | 21,130 | 184 | 1,210 |
| Lexington City | 7,194 | 63 | 412 |
| Staunton City | 21,069 | 184 | 1,207 |
| Waynesboro City | 14,874 | 130 | 852 |
| Clarke Co. | 10,714 | 94 | 614 |

## HEARING IMPAIRED POPULATION IN VIRGINIA

| CITY/COUNTY | PROJECTED 7/1/86 | .873% (DEAF) | 5.727% (OTHER H.I.) |
|---|---|---|---|
| Frederick Co. | 38,689 | 338 | 2,216 |
| Page Co. | 20,514 | 179 | 1,175 |
| Shenandoah Co. | 29,305 | 256 | 1,678 |
| Warren Co. | 23,857 | 208 | 1,366 |
| Winchester City | 20,448 | 179 | 1,171 |
| Arlington Co. | 150,172 | 1,311 | 8,600 |
| Fairfax Co. | 674,203 | 5,885 | 38,612 |
| Loudon Co. | 69,196 | 604 | 3,963 |
| Prince William Co. | 177,781 | 1,552 | 10,182 |
| Alexandria City | 104,691 | 914 | 5,996 |
| Fairfax City | 19,375 | 169 | 1,110 |
| Falls Church City | 9,335 | 81 | 535 |
| Manassas City | 18,581 | 162 | 1,064 |
| Manassas Park City | 6,771 | 59 | 388 |
| Culpeper Co. | 25,032 | 219 | 1,432 |
| Fauquier Co. | 41,426 | 362 | 2,372 |
| Madison Co. | 10,955 | 96 | 627 |
| Orange Co. | 20,170 | 176 | 1,155 |
| Rappahannock Co. | 6,512 | 57 | 373 |
| Albemarle Co. | 66,388 | 579 | 3,802 |
| Fluvanna Co. | 11,633 | 102 | 665 |
| Greene Co. | 8,915 | 78 | 511 |
| Louisa Co. | 19,522 | 170 | 1,118 |
| Nelson Co. | 12,297 | 107 | 704 |
| Charlottesville City | 40,841 | 357 | 2,339 |
| Amherst Co. | 30,404 | 265 | 1,741 |
| Appomattox Co. | 12,972 | 113 | 743 |
| Bedford Co. | 39,868 | 348 | 2,283 |
| Campbell Co. | 51,835 | 453 | 2,969 |
| Bedford City | 6,079 | 53 | 348 |
| Franklin Co. | 39,736 | 347 | 2,276 |
| Henry Co. | 59,827 | 522 | 3,426 |
| Patrick Co. | 18,446 | 161 | 1,056 |
| Pittsylvania Co. | 68,845 | 601 | 3,943 |
| Danville City | 44,753 | 391 | 2,563 |
| Martinsville City | 17,445 | 152 | 999 |
| Brunswick Co. | 16,107 | 141 | 922 |
| Halifax Co. | 30,443 | 266 | 1,743 |
| Mecklenburg Co. | 28,844 | 252 | 1,652 |
| South Boston City | 7,158 | 62 | 410 |
| Amelia Co. | 8,754 | 76 | 501 |
| Buckingham Co. | 12,897 | 113 | 739 |
| Charlotte Co. | 12,026 | 105 | 689 |
| Cumberland Co. | 8,513 | 74 | 488 |
| Lunenburg Co. | 12,249 | 107 | 702 |

## HEARING IMPAIRED POPULATION IN VIRGINIA

| CITY/COUNTY | PROJECTED 7/1/86 | .873% (DEAF) | 5.727% (OTHER H.I.) |
|---|---|---|---|
| Nottoway Co. | 14,661 | 128 | 840 |
| Prince Edward Co. | 17,311 | 151 | 991 |
| Charles City Co. | 7,004 | 61 | 401 |
| Chesterfield Co. | 181,201 | 1,582 | 10,377 |
| Goochland Co. | 12,393 | 108 | 710 |
| Hanover Co. | 56,856 | 496 | 3,256 |
| Henrico Co. | 194,779 | 1,700 | 11,155 |
| New Kent Co. | 10,585 | 92 | 606 |
| Powhatan Co. | 15,932 | 139 | 912 |
| Richmond City | 206,436 | 1,802 | 11,823 |
| Caroline Co. | 19,902 | 174 | 1,140 |
| King George Co. | 11,797 | 103 | 676 |
| Spotsylvania Co. | 45,604 | 398 | 2,612 |
| Stafford Co. | 49,677 | 434 | 2,845 |
| Fredericksburg City | 15,703 | 137 | 899 |
| Lancaster Co. | 10,600 | 93 | 607 |
| Northumberland Co. | 10,091 | 88 | 578 |
| Richmond Co. | 7,159 | 62 | 410 |
| Westmoreland Co. | 14,845 | 130 | 850 |
| Essex Co. | 9,713 | 85 | 556 |
| Gloucester Co. | 23,692 | 207 | 1,357 |
| King & Queen Co. | 6,235 | 54 | 357 |
| King William Co. | 10,326 | 90 | 591 |
| Mathews Co. | 8,459 | 74 | 484 |
| Middlesex Co. | 8,499 | 74 | 487 |
| Dinwiddie Co. | 22,907 | 200 | 1,312 |
| Greensville Co. | 11,504 | 100 | 659 |
| Prince George Co. | 27,082 | 236 | 1,551 |
| Surry Co. | 6,163 | 54 | 353 |
| Sussex Co. | 10,520 | 92 | 602 |
| Colonial Heights City | 17,243 | 151 | 988 |
| Emporia City | 4,631 | 40 | 265 |
| Hopewell City | 23,617 | 206 | 1,353 |
| Petersburg City | 39,670 | 346 | 2,272 |
| Isle of Wight Co. | 23,176 | 202 | 1,327 |
| Southhampton Co. | 18,495 | 161 | 1,059 |
| Chesapeake City | 128,934 | 1,126 | 7,384 |
| Franklin City | 7,593 | 66 | 435 |
| Norfolk City | 256,027 | 2,235 | 14,663 |
| Portsmouth City | 101,064 | 882 | 5,788 |
| Suffolk City | 48,005 | 419 | 2,749 |
| Virginia Beach City | 316,309 | 2,761 | 18,115 |
| James City Co. | 25,121 | 219 | 1,439 |
| York Co. | 38,692 | 338 | 2,216 |
| Hampton City | 123,328 | 1,077 | 7,063 |
| Newport News City | 148,797 | 1,299 | 8,522 |

## HEARING IMPAIRED POPULATION IN VIRGINIA

| CITY/COUNTY | PROJECTED 7/1/86 | .873% (DEAF) | 5.727% (OTHER H.I.) |
|---|---|---|---|
| Poquoson City | 10,461 | 91 | 599 |
| Williamsburg City | 10,229 | 89 | 586 |
| Accomack Co. | 32,003 | 279 | 1,833 |
| Northhampton Co. | 14,753 | 129 | 845 |
| Lynchburg City | 66,900 | 584 | 3,381 |
| TOTALS | 5,754,112 | 50,256 | 329,493 |



APPENDIX IX

CALIFORNIA
RELAY
SERVICE

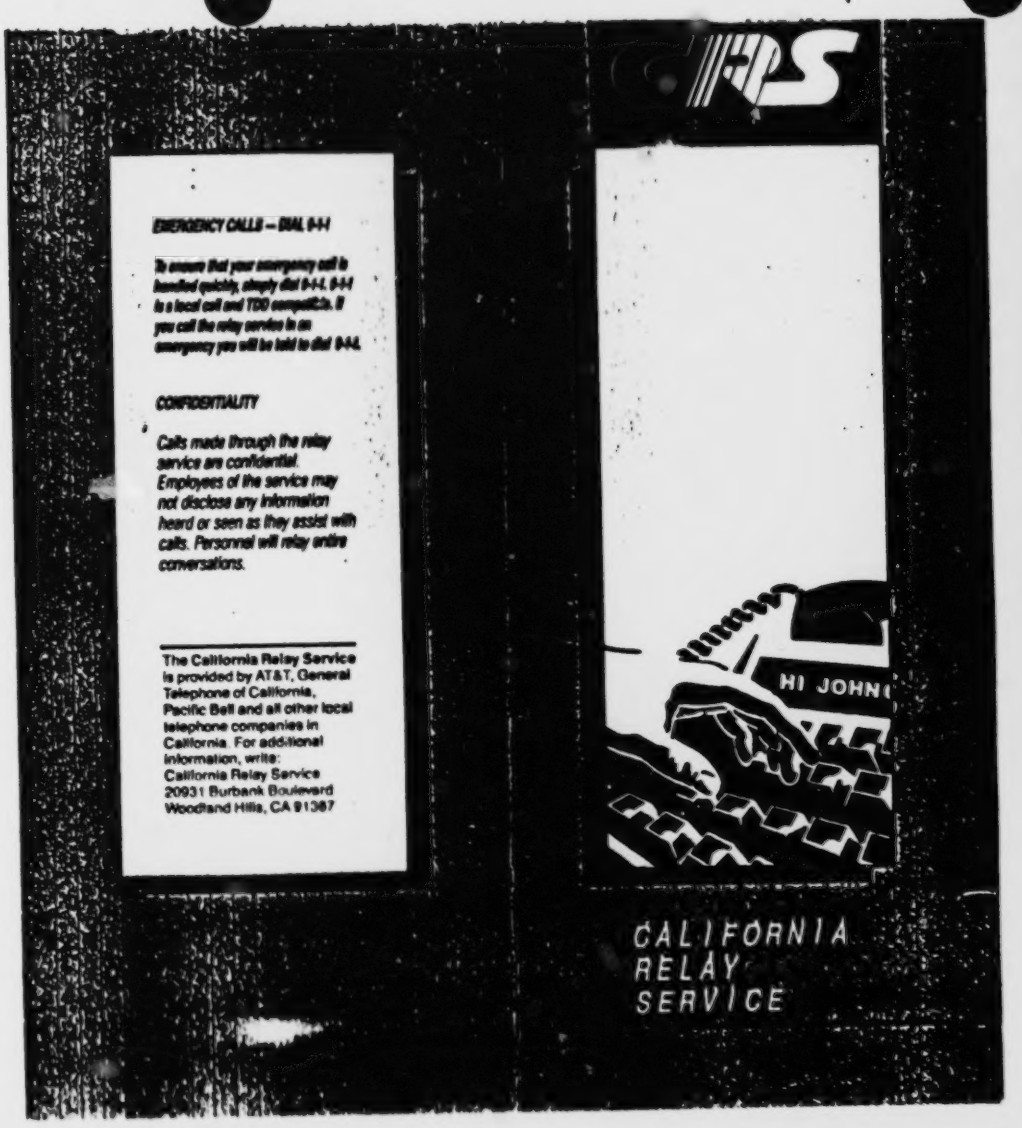
*The California Relay Service allows a person using a Telecommunications Device for the Deaf to communicate with any other telephone user within the state. This service also works in reverse, allowing a hearing person without a TDD to call a TDD user. Specially trained personnel are available 24 hours a day, seven days a week, to assist with your calls. There is no extra charge to use the relay service.*

*Toll free 800 numbers are available to use the service or obtain additional information.*

*If you have a TDD, dial*
*1 + 800 342 5966*

*If you are a hearing person and do not have a TDD, dial*
*1 + 800 342 5933*

*Calls are placed through the relay service will be billed at AT&T or local telephone company rates. For example, if you are in Sacramento and want to call someone in Ventura using the relay service, your bill will be only for a direct call from Sacramento to Ventura. You will not be billed for that portion of the call going from Sacramento to the California Relay Service or from relay service to your party in Ventura.*


EMERGENCY CALLS – DIAL 9-1-1
CONFIDENTIALITY
Calls made through the relay service are confidential. Employees of the service may not disclose any information heard or seen as they assist with calls. Personnel will relay entire conversations.
The California Relay Service is provided by AT&T, General Telephone of California, Pacific Bell and all other local telephone companies in California. For additional information, write:
California Relay Service
20931 Burbank Boulevard
Woodland Hills, CA 91367
HI JOHN
CALIFORNIA
RELAY
SERVICE



BEST COPY AVAILABLE

APPENDIX IV-A

VIRGINIA DEPARTMENT FOR THE DEAF AND HARD OF HEARING
TELECOMMUNICATIONS ACCESS SURVEY FOR HOUSE JOINT RESOLUTION 276
MAY, 1987

(INTERVIEWER: PLEASE FILL IN ALL OF ITEM I [EXCEPT NAME OF CONTACT] BEFORE CALLING.)

I. CALLER: ____ Outreach Worker ____ Volunteer ____ Office Staff
Name: _____
Name of Organization: _____
Address: _____
_____
Area Code, Phone # & Extension: _____
Name of Contact: _____

II. TO BE READ BY INTERVIEWER:

I am _____(name) and I (work/volunteer) for the Virginia Department for the Deaf and Hard of Hearing. (MENTION OUTREACH WORKER's NAME IF AFFILIATED WITH HER/HIM). The Virginia General Assembly directed the Department to measure whether public and some private services are accessible to deaf, hearing or speech-impaired persons, especially by telephone. Are you the person to whom I should speak about hearing or speech-impaired persons and their contact with your department? (If not, please refer me to the right person.)

III. 1. Do you or others in your office know of any deaf, hard of hearing or speech-impaired persons in your service area?
yes no don't know

2. A) Has your office had contact with deaf, hard of hearing or speech impaired persons?
yes no don't know (IF NO, GO TO #4.)

B) (IF #2A is YES, MARK ALL THOSE THAT APPLY) Communication was: (1) face to face, 2) by letter, (3) voice telephone, (4) TDD telephone, (5) message relayed by another person, (6) by passing notes, (7) gestures, sign.

C) How many times in the last year have you had these contacts? An estimate is o.k. _____
#

3. Has your department used interpreters in the last year to communicate with hearing impaired persons? yes no don't know

4. (A) Do you know what a TDD or TTY is? yes no don't know (IF NO),"TDD stands for telecommunication device for the deaf. It is a small keyboard device which connects to the telephone hand receiver. It allows the user to send and receive messages with another TDD user at another telephone." (IF NO, GO TO BLOCK B ON NEXT PAGE.)

   B) (IF #4A IS YES), Do you know of deaf or hard of hearing persons in your area who have a TDD? yes no don't know

5. Do you have a TDD/TTY in your office? yes no don't know (IF YES, GO TO #6, IF NO, GO TO BLOCK B ON NEXT PAGE.)

BLOCK A (USE ONLY IF RESPONSE TO # 5 IS YES)

6. A) Is the TDD located by the main telephone, dispatch area, switchboard or receptionist for your office? yes no don't know (IF YES, GO TO #7)

   B) (IF 6A IS NO), Where is the TDD located and why?_____

   _____

   _____

   C) (IF 6A IS NO), Is the TDD on a dedicated telephone line? yes no don't know

7. How often is the TDD used for incoming and outgoing calls in an average month? _____ #

8. How many persons in your office can operate the TDD? _____ #

9. How does one recognize an incoming TDD call? (1-Beeping, 2-Silence, 3-Other). (If other, explain)_____

   _____

10. Do you have an established procedure for handling TDD calls? yes no don't know If yes, please describe it briefly._____

    _____

    _____

11. Do you use your TDD to relay messages between hearing persons and deaf or speech impaired persons? yes no don't know

12. (IF #11 IS YES), how often in an average month? _____ #

END OF BLOCK A - GO TO QUESTION # 15

BLOCK B (USE ONLY IF RESPONSE TO #4A IS NO)

13. Has your office considered purchase of a TDD? yes no don't know

14. Have you needed to contact deaf, hard of hearing or speech impaired persons, but found yourself unable to do so? yes no don't know

END OF BLOCK B - GO TO QUESTION # 15

ALL PERSONS INTERVIEWED SHOULD RESPOND TO THESE QUESTIONS

15. Do you receive or make telephone calls which are relayed by hearing and speaking people to or from deaf or speech impaired persons? yes no don't know (IF NO, GO TO #17)

16. (IF # 15 IS YES), how often in an average month? _____ #

17. A) (IF # 15 IS NO), Do you know what a message relay service is? yes no don't know (IF NO), "A message relay uses a person with a TDD and a telephone to relay both voice and TDD messages. This allows TDD users and persons without a TDD to communicate through the third person."

    B) (IF # 15 IS NO), Would you use message relay services if available at no additional cost to you? yes no don't know

    C) (IF 17A IS YES) What message relay services have you heard of or used?

_____

_____

_____

_____

18. If you were to acquire a TDD, would your office be willing to relay messages of an urgent nature? yes no don't know

19. If you have used or tried to use message relay services, have you found them adequate? yes no not applicable

20. Having completed this survey, do you consider your office accessible to people who are deaf, hard of hearing or speech impaired? yes no don't know

21. Do you wish to be contacted with additional information on becoming more accessible to deaf, hard of hearing and speech impaired persons? yes no don't know

APPENDIX IV-B

ACCESS SURVEY OF SERVICE PROVIDERS

446 Responses in 6 regions of the State included hospitals, police, schools, public utilities, social service and rehabilitative offices, and other frequently used service providers.

16.8% or 75 responding agencies have TDDs

48% of responding agencies know what a TDD is.

74% of all responding agencies have had contacts with deaf, hard of hearing or speech impaired persons

90 contacts per year is the average.

36 calls per month is the average of calls received on TDDs.

58% of those with TDDs indicate they receive calls from non-hearing impaired persons calling for hearing impaired persons. 47% of those receive more calls of this nature than are received on TDD. Three indications: 1) hearing impaired persons with TDDs do not know the agencies have TDDs. 2) hearing impaired persons do not have access to TDDs to contact agencies with TDDs. 3) agency staff members do not recognize TDD calls and fail to respond.

24% of all respondents indicate they have no TDD yet feel they are accessible to the hearing impaired

6% of those agencies without a TDD have considered purchasing one.

APPENDIX V

SURVEYS OF PERSONS WHO ARE HEARING IMPAIRED

I. VDDHH has been interviewing persons who are hearing impaired. Information gathered includes whether the person has a TDD. To date, 449 forms have been completed.

- 151 (34%) have access to a TDD
- 298 (66%) did not indicate access to a TDD

II. 112 persons surveyed, including attendees at VAD convention, members of Self Help for Hard of Hearing and consumers known to VDDHH Outreach workers. It should be noted that those surveyed are among the more accessible hearing impaired persons.

60% or 68 of the respondents indicate they have a TDD

40% or 44 of the respondents did not indicate TDD ownership or use

65% of those without a TDD would like one

100% of those with a TDD use it at home

31% of all respondents use a TDD at work

76% of those persons with a TDD use message relay services

Problems associated with TDD use:

46 persons indicated message relay service was busy

40 persons indicated long distance costs too much

22 indicated message relay was closed

20 indicated they were not understood by the people they called

18 indicated they do not know phone numbers for other TDDs

14 indicated they could not understand people they call

9 individuals wrote in comments about problems with volunteers at message relay services lacking proper training

III. In August, 1987, selected rehabilitation counselors of the Department of Rehabilitative Services were asked to report on those clients with TDDs. Of 737 clients, 136 or 18% had TDDs.

## APPENDIX VI

### TELEPHONE COMPANY SERVICES

- 24 telephone companies surveyed.
- 21% or 5 responding companies report a TDD in the office.
- 50% or 12 companies report some form of special services or devices.
  - 10 companies report that they offer telephone amplifiers.
  - 1 company reported that it can provide an artificial larynx.
  - 1 company reports that it offers visual signalling systems.
  - To qualify for services, doctor's certification may be required.
  - Charges for services vary.
- 88% or 21 companies offer long distance discounts for residential TDD users.

APPENDIX VII

MESSAGE RELAY SERVICES

6 operate 7 days per week

5 operate 24 hours a day for emergency calls

2 close on some holidays

Employee Profile (indicates responses not number of employees)

| | |
|---|---|
| 0 paid (p) only | 1 v, ft |
| 2 volunteer (v) only | 1 p, ft |
| 0 full-time (ft) only | 1 p, v, pt |
| 0 part-time (pt) only | 3 p, v, ft, pt |

Staff Training Profile

3 TDD use only
1 sign language only
2 TDD use, deaf culture
0 deaf culture only
0 no training
2 TDD use, sign language, deaf culture

Confidentiality Policy

8 yes
no

TDDs available to:

| | |
|---|---|
| 0 rent only | |
| 0 loan only | 1 rent, buy |
| 0 buy only | 1 loan, buy |
| 4 none | 2 rent, loan, buy |

Walk-ins

4 yes
4 no

Would your organization support a statewide program of financial assistance to message relay services?

7 yes
0 no
1 don't know

Appendix VIII
TELECOMMUNICATIONS ACCESS
PROGRAMS IN OTHER STATES

| STATE | FUNDING | WHAT IS PROVIDED | TO QUALIFY |
|---|---|---|---|
| Arizona (1985) | Tax surcharge of 2¢ per month per line | TDDs, flashers, one-hour training to user, message relay service. Some repair services. State retains title to equipment. Relay services planned. | Hearing or speech impairment, or deaf-blindness |
| California (1980) | Tax surcharge of 3¢ per month per line. Message relay costs have been estimated at $15 million annually | TDDs, telebraillers, flashers, amplifiers and training, 24-hour statewide message relay. State retains title to equipment. | Hearing or speech impairment, or deaf-blindness |
| Connecticut (1983) | $100,000 per telephone company trust fund | TDDs, flashers. Relay service is funded and operated separately. State retains title to devices. Relay services are available. | Hearing or speech impairment, or deaf-blindness. Income criteria and limit on assistance per household. |
| Florida (1985) | $550,000 per year | TDDs, amplifiers, flashers, training. Message relay is under study. State retains title to equipment | Age of 9 or older, hearing or speech impaired, existing telephone service. |
| Hawaii (1985) | Small one-time donation | TDDS and flashers. | Age of 18 or older, hearing or speech impairment. Income determines priority. |
| Illinois (1985) | Surcharge of 3¢ per month per line | TDDs, flashers, telebraillers, relay services. | Deaf and severely hearing impaired persons. |
| Kansas | Information not available | Message relay service operating Monday through Friday, 8 a.m. - 5 p.m. | Available to all |
| Maine a. (1980) | (a) State provides 50% match up to $300 per device. | (a) TDD subsidized | (a) Deaf, hearing impaired or speech impaired. |
| b. (1983) | (b) | (b) TDD loaned | (b) Above, and personal and income information. |

Appendix VIII
TELECOMMUNICATIONS ACCESS
PROGRAMS IN OTHER STATES

| STATE | FUNDING | WHAT IS PROVIDED | TO QUALIFY |
|---|---|---|---|
| Maryland (1987) | $550,000 plus administrative costs (?) | Contracted message relay services on 24-hour basis by 1988. | -- |
| Massachusetts (1985) | State general funds | TDDs and flashers at up to 50% subsidy. Relay services are available. | Written certification of hearing impairment or deafness. Priority system addresses income and life circumstances. |
| Minnesota (1983) | Surcharge ? | TDDs, flashers, decoders, etc. loaned for up to 2 weeks. Message relay services on a regional basis. | -- |
| Nevada (1985) | Line surcharge of 10¢ per month, reduced to 5¢ by 1989. | TDDs, flashers, training. State retains title to equipment. Recipient may purchase optional features (auto answer, ASCII). | State residents 8 or older with hearing, speech or deaf-blind impairments. Limit one device per household. |
| New Hampshire (1985) | State general funds | TDDs. State retains ownership of equipment. | Deaf, hearing impaired or speech impaired persons. Priorities address income, degree of impairment, living arrangements, etc. |
| New Jersey | -- | TDDs for state agencies only | State agencies only. |

Appendix VIII
TELECOMMUNICATIONS ACCESS
PROGRAMS IN OTHER STATES

| STATE | FUNDING | WHAT IS PROVIDED | TO QUALIFY |
|---|---|---|---|
| New York (1986) | "state equipment fund" | Low interest loans for TDDS and other special telephone equipment. Relay services are planned. | -- |
| Oklahoma (1986) | Tax surcharge of 5¢ per line per month, triggered by rules for fund balances | TDDs, flashers. Recipient owns equipment after three years. Relay services are available. | Deaf, deaf-blind and speech impairment, year-round residence in state. Unintelligible by voice telephone, income criteria. |
| Rhode Island (1983) | Surcharge of 3¢ per line per month to establish $750,000 implementation fund | TDDS, other devices. State retains ownership. | Certification of impairment. |
| South Dakota (1979) | -- | TDDs, state retains ownership. | Deaf, resident of state. Device must be returned if individual moves out of state. |
| Texas | -- | 23 separate contracts for community based relay services. TDDs for state agencies only. | -- |
| Washington (1987) | Excise tax on switched lines. | TDDs, signal devices and amplifiers. Relay services to be studied. | Hearing impairment, inability to use voice telephone for expressive or receptive communication. |
| Wisconsin (1984) | $100,000 per year general funds 1st year, $80,000 per year thereafter. | Vouchers up to $600 per family for TDDS, flashers, modems, amplifiers, etc. Up to $5500 per family for deaf-blind clients. | Certification of hearing impairment and income. |

**IF YOU ARE A HEARING PERSON AND DO NOT HAVE A TDD and wish to call a TDD user:**

- Dial 1 + 800 342 5833
- When the relay service answers, tell them the name and telephone number of the person you want to call.

**IF YOU HAVE A TDD and wish to call a hearing person without a TDD:**

- Dial 1 + 800 342 5966
- The relay service will answer and type CALIFORNIA RELAY SERVICE MAY I HELP U Q GA

**LOCAL CALLS**

- Type: I want to make a call to (telephone number and name of person you are calling).
- From (telephone number you are calling from).
- My name is _____
- GA

**LONG DISTANCE**

- Type: I want to make a call to (area code, telephone number and name of person you are calling).
- From (area code and telephone number you are calling from).
- My number is _____
- GA

**COLLECT CALLS**

A collect call means the person or business you are calling agrees to pay for the call.

- Type: I want to make a collect call to (area code and telephone number).
- I am calling from (area code and telephone number).
- My name is _____
- GA

**CALLING CARD CALLS**

If you have a calling card from your local telephone company or AT&T (issued to a number within California) you can make calls and charge them to a calling card number.

- Type: This is a calling card call to (area code and telephone number of the person you are calling).
- I am calling from (area code and telephone number).
- My name is _____.
- Bill the call to (telephone calling card number).
- GA

**BILL TO THIRD NUMBER CALLS**

You can make calls and bill them to a number that is different than the one you are using or calling. The third number must be in California.

- Type: This is a third number call to (area code and telephone number of the person you are calling).
- From (area code and telephone number you are calling from).
- My name is _____
- Bill the call to (area code and telephone number you want the call billed to).
- GA

**PERSON-TO-PERSON CALLS**

If you call Person-to-Person you do not have to pay if the person you want is not available.

- Type: This is a person-to-person call to (area code and telephone number and name of person you are calling).
- I am calling from (area code and telephone number).
- My name is _____.
- GA

**CALLS FROM A HOTEL OR MOTEL-BILLED TO YOUR ROOM**

If you want to make a call from your hotel/motel room, give the relay service the complete name of the hotel/motel and your room number.

- Follow hotel dialing directions.
- Type: I am calling from my hotel room to (area code and telephone number of the person you are calling).
- I am at the _____ hotel and the telephone number is (area code and telephone number).
- My name is _____
- My hotel room number is ___
- GA

**CALLS FROM A PAY PHONE**

Only calling card, collect or bill to a third number calls can be made through the relay service from pay phones. The relay service cannot collect or return money at pay phones.

- Type: I am calling from a pay phone to (area code and telephone number you are calling).
- From (area code and telephone number of the coin phone you are using).
- My name is _____
- Bill the call to (choose one):
  - Third number (area code and telephone you want the call billed to).
  - Calling card (your calling card number).
  - Collect — just type "collect" as you have already given the number.
- GA

APPENDIX X

PROPOSED REVISIONS TO CODE OF VIRGINIA

Programmatic

ADD an item 9 to §63.1-85.4 as follows:

9. To operate a program of telecommunications assistance and services to persons with hearing or speech impairments including the distribution of TDDs and support of message relay services, through grants, contracts, or other means.

Regulatory

ADD an item §63.1-85.8 as follows:

Making rules and regulations. -- The Department shall, as to matters relating to services to the deaf, hearing impaired or others, make such rules and regulations, not in conflict with this title, as may be necessary or desirable to carry out the true purpose and intent of this title and to provide for the proper supervision and administration of this title. Such rules and regulations shall be binding on all officers, agents and employees, state and local, engaged in the administration of the provisions of this title.

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